Abstract of the Disclosure

Provided are an IP address lookup system and method for forwarding a packet over a data plane of a router.   The IP address lookup system includes a forwarding table which has a three-layer table architecture so that it can search for each address group that constitutes an IP destination address of an input packet and a forwarding engine which obtains packet processing information and next hop information for the input packet by searching for the forwarding table using the IP destination address as a search key.